

REMARKS

In response to the above Office Action, claim 11 has been amended to include the subject matter of claim 16 and claim 16 has been cancelled. Conforming amendments were made to claims 12-15.

Consequently, the main claim of this case, claim 11 now relates to an article of clothing comprising an article of clothing having an outer, top surface when worn by a person and containing a knitted or woven composite fabric material having an outer, top surface layer that forms at least a part of the outer, top surface of the article of clothing, said outer, top surface layer of the fabric having a reduced color change when contacted with water, and said composite fabric material being a multi-layered structure of said outer, top surface layer and at least one inner layer that is closer to the body of the person than the outer, top surface layer when the article of clothing is worn, the outer, top surface layer being formed with a yarn made from a synthetic fiber that contains from 1% by weight or more to 6% by weight or less of a white pigment and/or a core-sheath composite synthetic fiber comprising a core portion that contains from 3% by weight or more to 15% by weight or less of a white pigment, and a sheath portion containing 2% by weight or less of a white pigment, and at least one inner layer being formed with a yarn made from a water-absorbent and water-diffusing fiber.

In essence, claim 11 now specifically claims an article of clothing having an outer, top surface that contains the recited knitted or woven, multi-layered composite fabric that has an outer, top surface layer that forms at least a part of the outer, top surface of the article of clothing and at least one inner layer that is closer to the body of the person when the article of clothing is worn. Support for the multi-layered fabric

structure having an “outer layer” can be found, for example, on page 54, line 12 or page 55, line 10.

The purpose of the structure of claim 11 is to make it clear that at least a part of the outer, top surface of the article of clothing is formed from the outer, top surface layer of multi-layered structure, so that the article of clothing will have a reduced color change when contacted with water and to clearly distinguish the claimed article of clothing from the cited prior art.

The claimed article of clothing contains either entirely or in part the present composite fabric material. For example, it can be a polo shirt formed entirely of the composite fabric material, or a polo-shirt in which either the sleeve portions or the front and back bodice portions are formed of the composite fabric material, while other portions are formed of fabric material other than the present composite fabric material.

When an article of clothing gets wet from rain or perspiration, the color shade of the cloth tends to deepen in the area of the wetted spot and the appearance of the clothing is temporarily marred. The present invention is based on an idea that surface color shade change of a dyed fabric can be significantly suppressed when the fabric material of the clothing is composed of a white pigment containing fiber layer and a water-absorbent and water-diffusing fiber layer in a specific combination. In the composite fabric material structure of the claimed article of clothing, a water film on the surface of a fiber containing white pigment in a dyed fabric will be swiftly removed, so that the water at the wet spot within the fabric of the clothing will be redistributed towards surrounding areas and any color change occurring at the wet spot will be swiftly reduced.

As discussed on page 1, line 14 through page 2, line 5 of the present specification, the fabric of an article of clothing formed wholly of fiber containing white pigment cannot prevent a temporal color change occurring at a wet spot formed from water or perspiration. An occurrence of the temporal color shade change at a wet spot within the fabric of an article of clothing can be prevented in accordance with the present invention only when the fabric is composed of a fiber containing white pigment in combination with a water-absorbing and water-diffusing fiber. When the fabric structure of the article of clothing is formed of a fiber containing white pigment and a water-absorbing and water-diffusing fiber, removal of water partially present over the surface of the fiber containing white pigment in the fabric is accelerated by capillary distribution of water over the surface of the fibers forming the fabric material. As a result, the change in color shade by a temporal uneven presence of water readily becomes undistinguishable (or diminished) from the surrounding outer surface color shade of the article of clothing and so, the color of the wet spot of the fabric of the article of clothing is rapidly made indistinguishable.

The article of clothing of the present invention has a surprisingly advantageous effect on maintaining the spirit or mind of a competitive athlete. When an athlete, for example in tennis, or in a marathon race, is in action, he (or she), wearing the article of clothing containing the composite fabric material according to the invention, can make their outward appearance look fresh regardless of their physical shape, thereby preventing their opponent from knowing his (or her) true level of exhaustion.

Temporal color or transparency change occurring by spurious perspiration or rainwater can thereby be efficiently minimized. Prevention of a see-through appearance

in the event of heavy perspiration or exposure to heavy rain is very much required in women's fashion.

Articles of clothing containing the composite fabric material are now being sold commercially in Japan and European countries, for example, as tennis wear, golf wear, aerobics wear, swimwear and the like. See the brochure entitled "Aquamiracle," filed with the Reply of July 14, 2004.

Dependent claims

The invention of claim 12 is a specific embodiment of claim 11 as it enables a color change in the outer, top surface of the article of clothing to become even more unnoticeable because the water-absorbent and water-diffusing fiber itself hardly changes in color when the fabric thereof gets wet (see page 10, lines 29 to 35 and page 10, line 37 to page 11, line 9).

The invention of claim 13 is a specific embodiment of claim 11, which provides an article of clothing made from a stretchable composite fabric material.

The invention of claim 14 is a specific embodiment of claim 11 in which the water-absorbent and water-diffusing fiber used to form the inner layer of the composite fabric material of the article of clothing has an appropriate specification of water-absorbability and water-diffusibility (see page 8, line 14 to page 9, line 11). In the present invention value X for the water-absorbent and water-diffusing fiber is selected to be greater than that of the white-pigment containing fiber forming the outer, top surface layer of the multi-layered composite fabric material so as to promptly migrate water from the outer, top surface of the article of clothing to the inner layer thereof (see page 8, line 35 to page 9, line 3).

The invention of claim 15 is a specific embodiment of claim 11 in which the water-absorbent and water-diffusing fiber has a W-shaped cross section. A W-shaped cross section imparts a greater capillary action and water-retaining characteristic, which serves to make the composite fabric material of the article of clothing have both anti-color change properties and wearing comfort (see page 10, lines 4 to 25).

In the Office Action, the Examiner rejected claims 10-14 and 16 under 35 U.S.C. §103(a) for being obvious over Moretz in view of Mouri and claim 15 further in view of Unitika.

The interview granted applicants' attorney on September 15, 2004 is appreciated. At the interview the composite fabric material of claim 11 filed with the Reply of July 14, 2004 was discussed and the advantages achieved by it when it is used to form an article of clothing because of its unique multi-layered structure. However, the Examiner still believed, as set forth in the rejection of this Office Action, that the multi-layered structure of the composite fabric material per se was obvious over the cited combination of references.

As noted above, claim 11 has now been amended to relate specifically to an article of clothing containing the composite fabric material and not the composite fabric material per se in order to give meaning to the specific structure of the claimed multi-layered structure of the composite fabric material . While the Examiner included claim 16 in the rejection, which claimed the composite fabric material of claim 11 in the form of an article of clothing, the claim did not specifically recite how the composite fabric material was used in the article of clothing.

Amended claim 11 how specifically recites how the multi-layered composite fabric material forms at least a part of the structure of the claimed article of clothing. As explained in more detail below, this is not the same as the structure of the article of clothing of the cited prior art, and, in fact, is the opposite thereof, and which structure provides specific advantages not disclosed by the cited prior art.

Moretz discloses an undergarment made of a multi-layered composite fabric material. The composite material has a moisture transport fabric layer 17A on the inside of the undergarment that is intended to be next to the skin of the wearer when the undergarment is worn made of a synthetic fiber (e.g., a polyester or polypropylene fiber) and an inner moisture dispersal fabric layer 17B located in spaced-apart relation from the skin made of a water-absorbent and water-diffusing fiber (e.g., nylon, cotton, rayon, etc.)

Thus Moretz discloses a multi-layered fabric material having the same two layers as in applicants' invention, but in the fabric of the article of clothing, the layers are reversed. In other words, the layer made of the synthetic fiber equivalent to applicants' "outer, top surface layer," which as claimed "forms at least a part of the outer, top surface of the article of clothing" (emphasis added), is on the inside of the undergarment and the layer made of the water-absorbent and water-diffusing fiber is on top of that layer. In contrast, in the present invention, the layer made of the synthetic fiber is the outer, top surface layer of the composite fabric material and is the outer, top surface of the article of clothing and the layer made of the water-absorbent and water-diffusing fiber is an inner layer below that layer.

As noted by the Examiner, Moretz does not disclose adding a white pigment to the composite fabric material as required in claim 11.

Mouri discloses adding a titanium oxide such as titanium dioxide, in an amount of from 0.1 to 25% by weight together with an absorbent to fiber as a deodorizable composition. The reference further teaches that such fibers find use in underclothing (column 15, line 58). The Examiner therefore believes that it would be obvious to one skilled in the art to add the composition including the titanium oxide to the liquid transporting and dispersing fibers of the undergarment of Moretz to enable the fibers to have a deodorizing effect as taught by Mouri.

However, even if it was obvious for a man skilled in the art to combine the references, it must be appreciated that the titanium oxide containing deodorizable composition would not be added to an "outer, top surface layer" of the composite fabric material of the undergarment of Moretz, but rather to the inner most layer 17A of the material of the garment. This would be consistent with the suggested combination, because if one wanted to create a deodorizing effect with the titanium oxide composition they would add it to the fibers of the layer closest to the source of the odor, i.e., the inner layer next to the skin of the wearer.

On the other hand, the purpose of the titanium oxide in the present invention is entirely different as acknowledged in lines 5-7 of paragraph 9 of the Office Action of January 15, 2004, namely to reduce color change when the composite fabric material of the article of clothing contacts water. That is why it is added, at least to the fibers of the "outer, top surface layer" of the material which forms at least a part of the "outer, top surface" of the article of clothing.

It is submitted that there is nothing in Moretz or Mouri that would suggest adding the titanium oxide composition to an outer layer of the undergarment of Moretz when the motivation for adding it is to create a deodorizing effect. Logically it would be added, if at all, to an inner layer consistent with the Examiner's suggestion.

Moreover, even if it might be obvious to add the titanium dioxide composition of Mouri to both layers 17A and 17B of the undergarment of Moretz, the claimed article of clothing, as discussed above, is still not the same as that of Moretz because the layers of the fabrics of the two clothing articles are reversed.

As required by M.P.E.P. §2143, to establish a prima facie case of obviousness, the prior art references when combined "must teach or suggest all of the claim limitations." It is submitted that neither Moretz nor Mouri teach or suggest adding titanium oxide to the outer layer of the composite fabric material of the article of clothing of Moretz as claimed in claim 11 regardless of its purpose. In addition, even if they did, the composite fabric material of the article of clothing of Moretz would still be different than the composite fabric material of the article of clothing claimed in claim 11. Accordingly claim 11 cannot be considered obvious over this combination of references.

The Examiner comments on page 4, paragraph 6 of the Office Action, that the fabric material of Moretz could be worn "inside out." However, this is not a proper modification of Moretz because it would defeat the purpose and intended use of the undergarment of Moretz. As noted in M.P.E.P. §2143.01:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

Thus it is submitted that it is not proper to base an argument for obviousness on the modification or the teachings of Moretz that would end up making the invention therein "unsatisfactory for its intended purpose."

With respect to dependent claims 12-15, it is submitted these claims are at least patentable for the same reasons expressed above with respect to claim 11.

It is believed claims 11-15 are in condition for allowance and such action is therefore requested.

A Request for Continued Examination is being filed with this Reply to enable the Examiner to consider the claim amendments at this time.

In view of the foregoing amendments and remarks, applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By: 

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